



UCAR International Outreach Activities: Remote Sensing

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Director

A Philosophy

- Provide Information
 - What is coming?
 - What can the sensors do?
 - How will I get the data?

Weather forecasters are not as interested in the engineering decisions as they are in the utility of what is coming

- **Demonstrate the utility and use of data**
 - Detection of specific features (dust, fog, fires, etc.)
 - Advantages and improvements over today
 - Limitations
- **Demonstrate the application of the data in weather forecasting**
 - Model Initialization (water vapor, jet streaks, mountain waves)
 - Surface features (fog)
 - Situational Awareness (dry lines)
 - Disasters (fires, volcanic ash)

Dissemination and Training

- International organizations can't always handle bandwidth
- Training centers can stimulate use of new satellite data
- Training is needed in multiple languages
- Training is needed with regional applications

Information

NPOESS¹: The Next Generation Polar-orbiting Operational Environmental Satellite Program
 Presented by John D. Cunningham, System Program Director
 Integrated Program Office
Produced by the COMET[®] Program

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User Survey ¹National Polar-orbiting Operational Environmental Satellite System

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**An Introduction to
 POES Data and Products**

*by Stan Kidder (CSU/CIRA)
 and
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Constellation Observing System for Meteorology,
 Ionosphere & Climate

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What's New!
 June 19th, July 1st 2004: Boulder, Colorado: "Summer Colloquium on Atmospheric Remote Sensing Using the Global Observing System".
 Click here for more information.
 Go to the What's New page for more.

Click here to join our Global
 Discussion Board

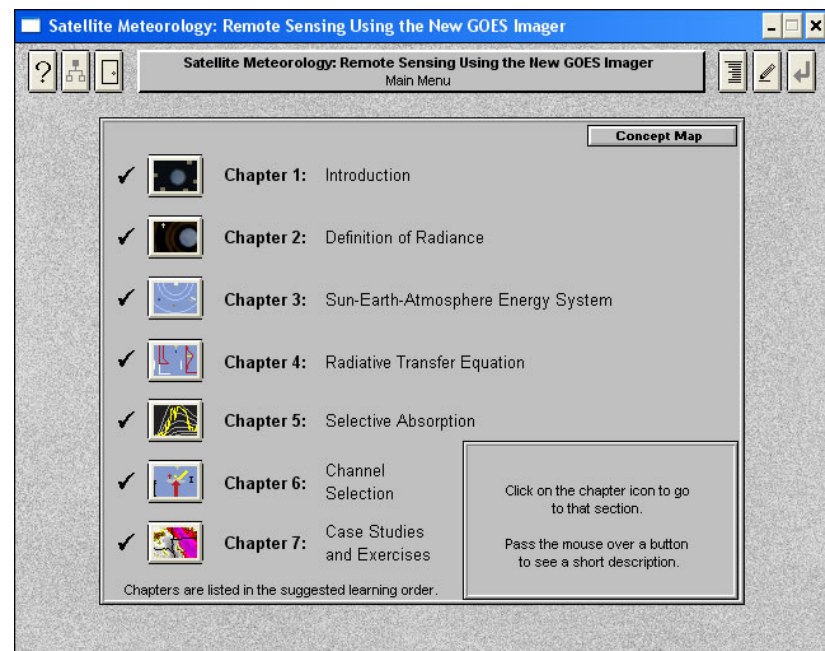
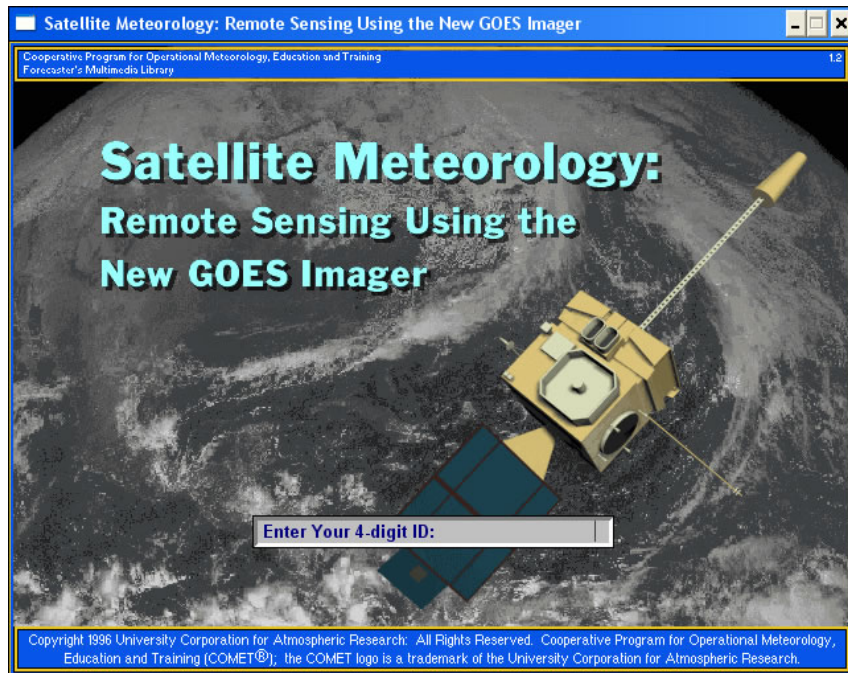
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What CDAC Data Access
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What Research is CDAC Observing




Information



Demonstration

Polar Satellite Products for the Operational Forecaster: Microwave Products & Applications



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Remote Sensing of Land, Ocean, and Atmosphere with MODIS



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Operational Satellite Derived Tropical Rainfall Potential (TRaP)

Developed by Sheldon Kusselson
Produced by the COMET® Program

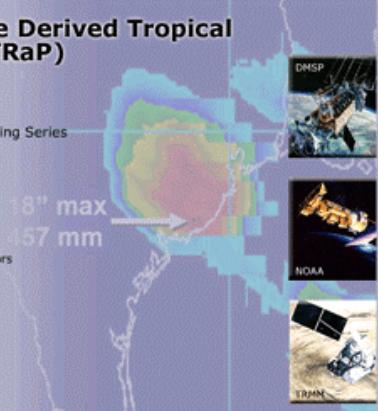



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Demonstration

Dust Enhancement Techniques Using MODIS and SeaWiFS

Presented by Dr. Steven Miller, Naval Research Laboratory, Monterey CA

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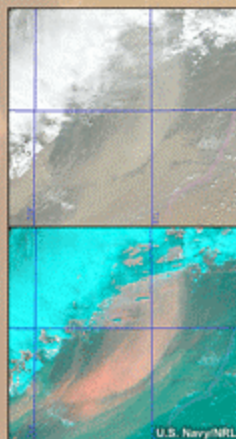
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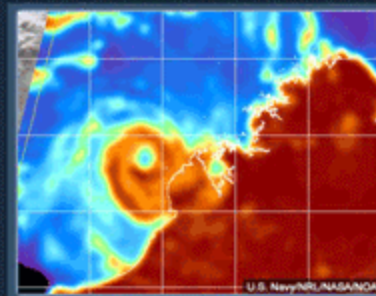
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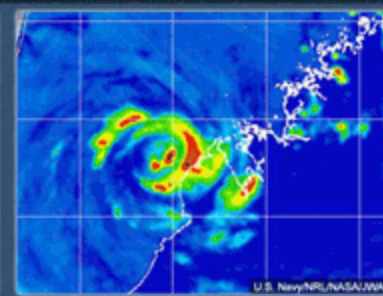
U.S. Navy/NRL

Polar Satellite Products for the Operational Forecaster: Microwave Analysis of Tropical Cyclones

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U.S. Navy/NRL/NASA/NOAA



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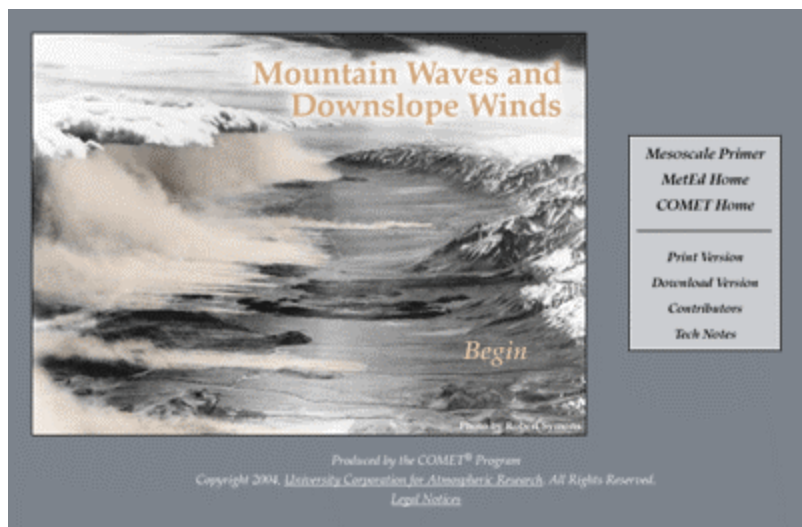
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Application



Application

**Feature Identification Exercises:
Clouds, Snow, and Ice Using MODIS**

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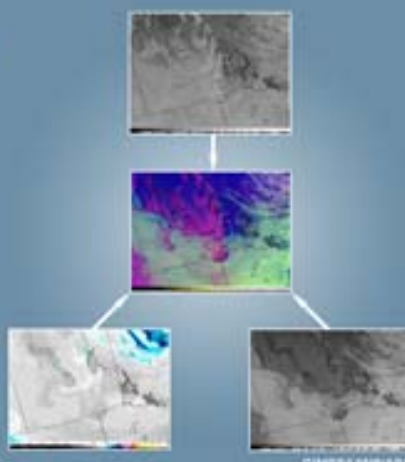
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Case Study: A New England Fog Event

Produced by the COMET® Program

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MeteoForum: A Pilot Project

- ❑ Developed jointly by two UCAR Programs
 - COMET
 - Unidata
- ❑ Collaboration with WMO Region III & IV Regional Meteorological Training Centers (RMTCs)
- ❑ Funded by UCAR Office of Program (UOP) and COMET Director's opportunity funds, and NWS office of International Affairs

MeteoForum RMTC Participants



Universidade Federal do Pará

Universidad de Buenos Aires

Universidad de Costa Rica

Caribbean Institute for
Meteorology and Hydrology

Universidad Central de
Venezuela

MeteoForum Concept

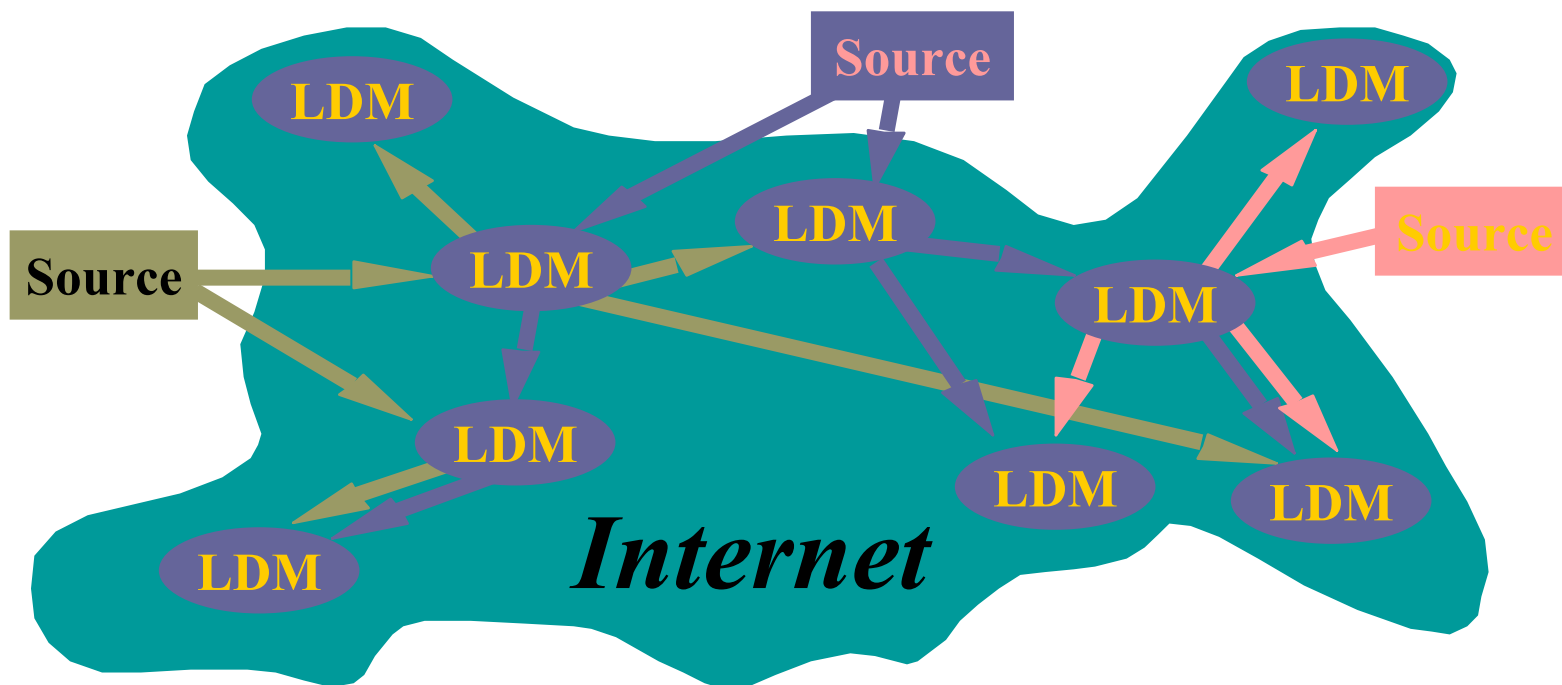
Use the Internet to strengthen RMTCs by:

- ❑ Enabling free access to:
 - Rich data resources
 - ❑ Real-time flows of observations & model outputs
 - ❑ Case-studies with comprehensive data sets
 - ❑ Remotely-sensed data including satellite imagery
 - ❑ Climate records...
 - Software for data display & analysis
 - Training & reference materials, on Web or CD
- ❑ Promoting coordination among RMTCs, universities, and national meteorological services

Dissemination & Training

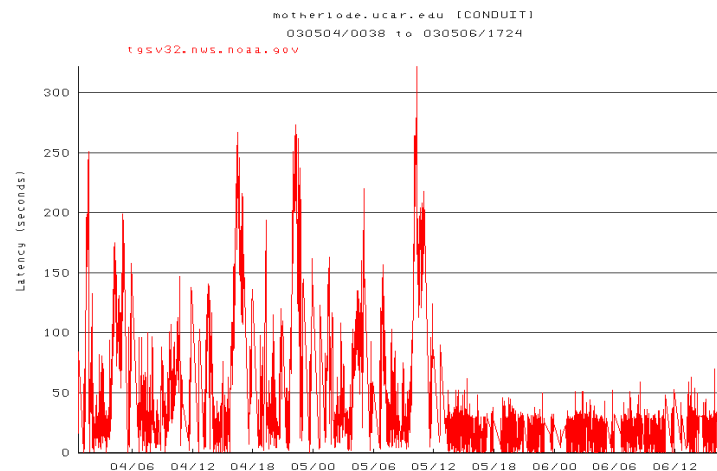
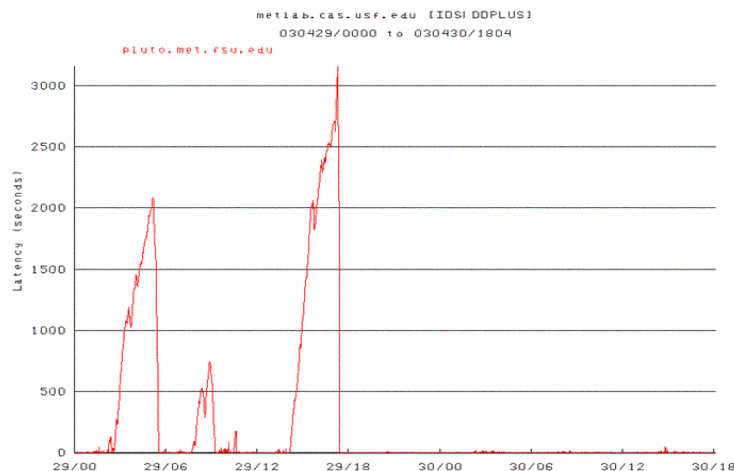


Internet Data Distribution



Using LDM software for relaying data, some 160 Unidata universities cooperate to acquire real-time, global, atmospheric & oceanic observations, model outputs, remotely sensed images, etc. This is possible through coordinated community effort.

LDM-6 Modernization



- ❑ Use TCP guaranteed delivery instead of RPCs
- ❑ User-selectable product “chunking”
- ❑ Code cleanup for greater efficiency
- ❑ Evolution of real-time statistics gathering and display

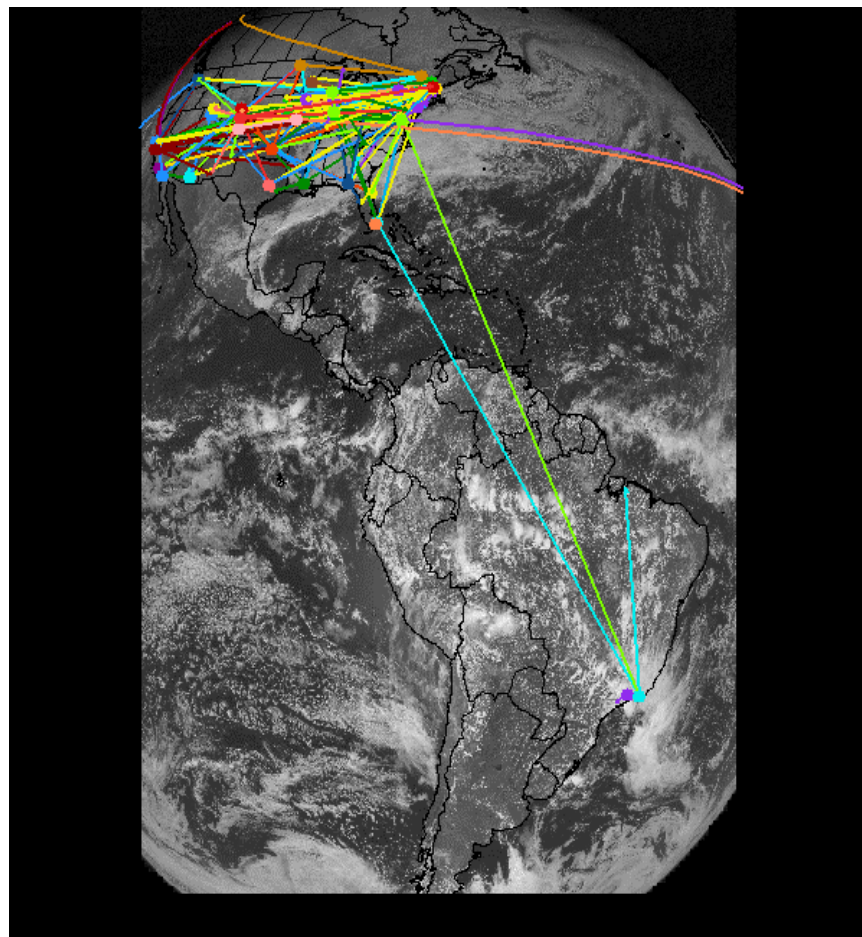
IDD-Brazil Connects to Unidata IDD

□ Current Participants

- NSF/ATM
- University of Miami
- Unidata Program Center
- UFRJ
- UFPA
- CPTEC/INPE
- USP

□ Infrastructure

- Internet2
- AMPATH (NSF)
 - FIU
 - Global Crossing
- RNP
- ANSP



MeteoForum - Initial Successes

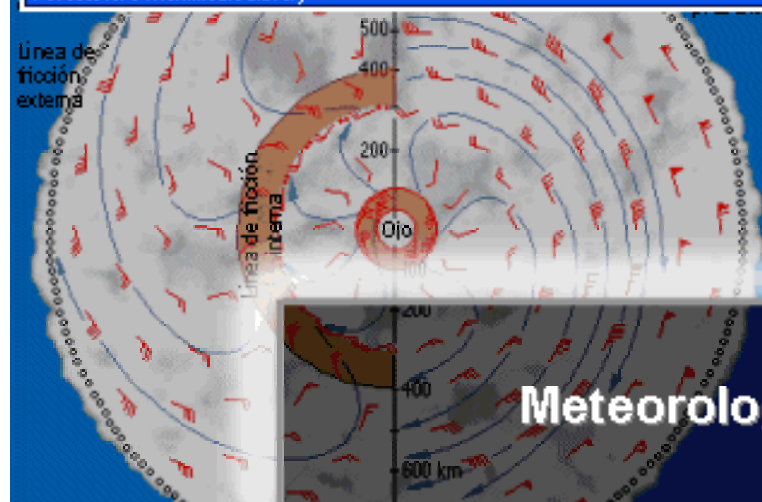
- ❑ Establish data distribution network linking Unidata IDD with research and educational institutions in Brazil - *IDD-Brazil*
- ❑ Fund translation of select COMET training modules into Spanish (Costa Rica and Argentina)
- ❑ Install Unidata-developed NOAAPORT reception system and high-end application workstation at Universidad de Costa Rica

International Partnerships

- Meteorological Service of Canada
 - COMET sponsor
- Australian Bureau of Meteorology
 - Aviation program
 - Module development assistance
- EUMETSAT
 - Joint development for polar orbiting satellites
- EUMETCAL
 - Joint development (*Polar Lows*)
- World Meteorological Organization
 - Travel for WMO participation in MeteoForum
 - Distribution of COMET materials worldwide

Summary

- ❑ International outreach activities fall into four categories
 - Information
 - Utility
 - Applications
 - Dissemination and training
- ❑ Combined, these activities serve to stimulate and expand the use of space based remote sensing worldwide



Meteorología Satelital:

Casos de Estudio

Con los Datos del Sensor de Radiación del GOES

Perfil de presión
sinóptico en sup.

Perfil de presión en sup.
modificado por la
mesoescala

06-Sep-95 13:45:12 Z Huracán

Luis GOES-8 1 km MS

4-Ene-95 13:02:24 Z 10.7 μ m

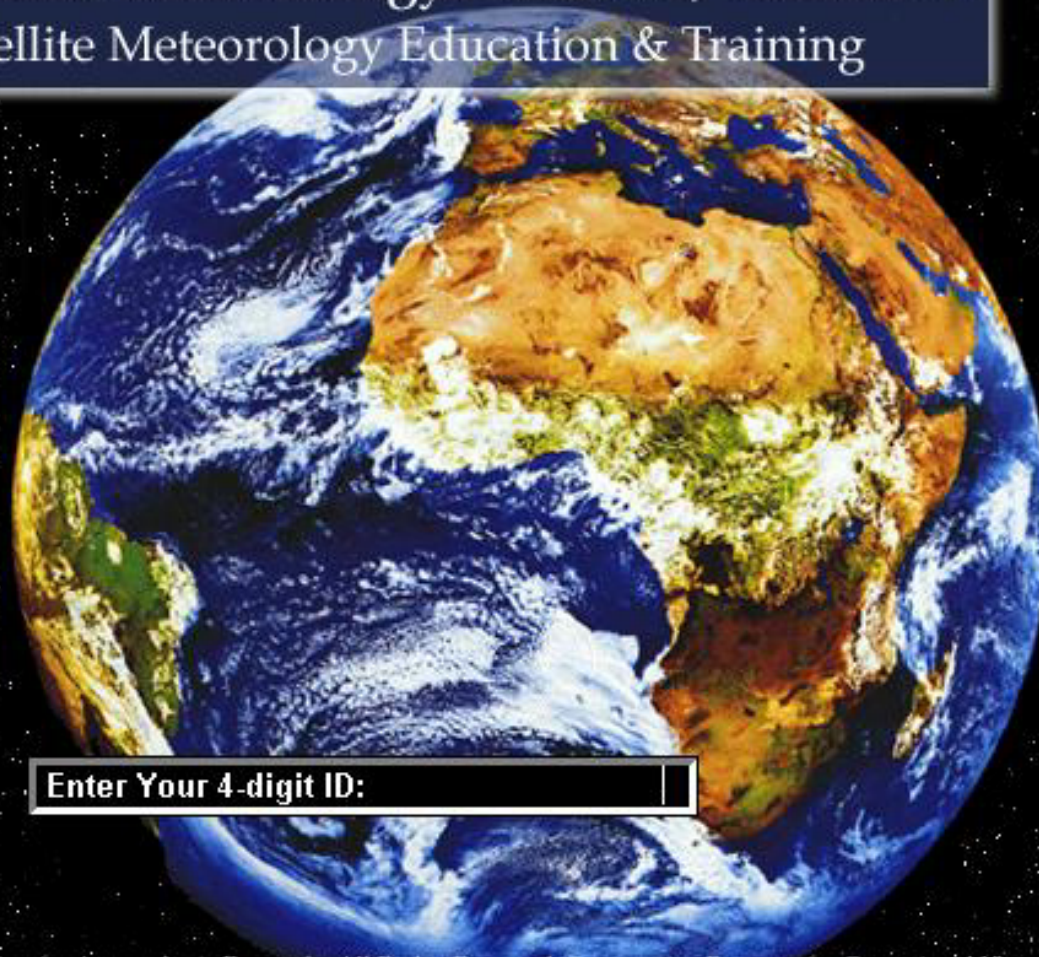
NIOS 1 km Reflectividad 0.5 grados

600 - 800 AGL
Weakening Return
Lessening Snow Production

Escriba una clave de 4 dígitos:

ASMET - Satellite Meteorology in Africa, Volume I

African Satellite Meteorology Education & Training



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